

RIVERS AND FLOODS, APRIL, 1911.

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Two storms that moved eastward over the central portion of the country during the first week of the month were attended by general and heavy rains that caused floods in the lower Ohio River and its tributaries and in the rivers of the Gulf of Mexico system. The floods were in all cases moderate, the crest stages varying a few feet above or below the flood stages, except in the lower Tennessee River, where the flood was the most important that has occurred in a number of years. Warnings were issued promptly in all instances, and the public was kept fully advised as to expected conditions.

The only flood stage reported in the Cumberland River was at Clarksville, Tenn., where the crest stage was 43.4 feet on April 15, 0.4 foot above the flood stage. No damage of consequence resulted, although a considerable amount of replowing will be necessary in the bottom lands.

Owing to the moderate character of the rises in the Holston and French Broad Rivers, flood stages were not reported in the Tennessee River above Bridgeport, Ala., but below that place they were general. The following table gives the flood stages, crest stages, and dates, and the number of days the river was above the flood stage at the various stations:

Station.	Flood stage.	Crest stage.	Date.	Number of days above flood stage.
Knoxville, Tenn.....	12	14.2	7	2
Loudon, Tenn.....	25	14.4	7	0
Kingston, Tenn.....	25	19.5	7	0
Chattanooga, Tenn.....	33	29.9	9	0
Bridgeport, Ala.....	24	24.0	9	1
Guntersville, Ala.....	31	34.0	10	4
Decatur, Ala.....	21	31.6	11	3
Florence, Ala.....	16	22.0	10	11
Riverton, Ala.....	32	43.5	11	18
Johnsonville, Tenn.....	25	36.1	17	19

Additional heavy rains on April 18 and 19 checked the falling river and started another more moderate rise at all points above Johnsonville, Tenn. At Johnsonville the up-river rise served only to check the rate of fall.

The damage done was of the usual character and was small except at the lock and dam at Hale's bar, a short distance below Chattanooga, where the damage to sheds, engines, boilers, etc., amounted to about \$30,000. The construction company, however, saved property of equal value as a result of the warnings, and property and livestock to the value of about \$50,000 in the vicinity of Decatur, Ala., were removed to places of safety upon receipt of the warnings. Along the lower river crops to the value of about \$10,000 were destroyed or damaged. Several hundred acres of wheat were overflowed, but much of this land can be replanted to corn or cotton. The value of property saved, in addition to that at Hale's bar, was about \$12,000.

The rise in the Wabash River began on April 3, but flood stages were not reached except at Mount Carmel, Ill., where the river was above the flood stage of 15 feet from April 9 to 26, inclusive, with a crest stage of 19.6 feet on April 22. The West Fork of the White River at Elliston, Ind., was also 1 foot above the flood stage of 21

feet on April 17. Warnings for the Wabash River were first issued on April 8. The losses were confined to wheat and oats, and amounted to several thousand dollars.

The upper Kentucky River was also in flood from April 6 to 8, inclusive, but no damage of consequence resulted. Heavy local showers, however, did considerable damage along some of the smaller streams. The losses from the lower Ohio River flood were about \$21,000, nearly all in the vicinity of Shawneetown, Ill., and about one half was due to suspension of business operations. The following table gives the flood stages, crest stages, and dates, and the number of days the river was above the flood stage at the various stations:

Station.	Flood stage.	Crest stage.	Date.	Number of days above flood stage.
Evansville, Ind.....	35	38.4	17	8
Henderson, Ky.....	35	36.1	17	5
Mt. Vernon, Ind.....	35	37.7	18	8
Shawneetown, Ill.....	35	39.4	19	11
Paducah, Ky.....	43	42.6	20	0
Cairo, Ill.....	45	45.4	20, 21	4

The floods in the Black and upper White Rivers of Arkansas were moderate, and no damage was reported. The flood in the lower Sulphur River of Texas overflowed a large area of bottom lands, but timely warnings prevented the loss of any of the livestock that was pastured in the bottoms. The value of this stock is about \$200,000.

Moderate stages of water prevailed in the Missouri River with a falling tendency after the first week of the month, while the Mississippi River above the mouth of the Ohio continued low. Below the mouth of the Ohio the Mississippi River rose throughout the month, passing the flood stage of 34 feet at New Madrid, Mo., on April 17, and reaching a crest of 36.3 feet on April 22. At Memphis, Tenn., the flood stage of 33 feet was passed on April 17, and a crest of 36.5 feet was reached on April 26. At Helena, Ark., the flood stage of 42 feet was reached on April 22, and a crest of 44.5 feet on April 27 and 28. At Arkansas City, Ark., the flood stage of 47 feet was reached on April 28, and the river was still rising at the end of the month. No flood stages occurred below Arkansas City.

The floods of the south Atlantic and east Gulf States were not of consequence, and the warnings prevented the loss of any property. The ice moved out of the Penobscot River at Mattawamkeag, Me., on April 13, and at West Enfield, Me., on April 5. The upper Connecticut River was generally clear after April 7, but floating ice was observed at Wells River, Vt., as late as April 15.

Hydrographs for typical points on several principal rivers are shown on Chart I. The stations selected for charting are Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.